

THE RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF FISH AND GAME  
MARINE RESOURCES REGION

REPORT FOR THE MONTH OF JUNE 1973

Los Angeles Harbor was quarantined for water contact activities when raw sewage was discharged into the main channel for five days. Failure of the system leading to the Los Angeles City Terminal Island sewage treatment plant was the cause. Caged fish placed near the discharge did not exhibit adverse physical affects due to the discharge. When conditions subside, bottom organisms will be checked for adverse affects.

- - - - -

On June 10, Senior Marine Biologist Mel Odemar, inspected the oil and gas seep off Coal Oil Point near Santa Barbara. The inspection was made from the two man submersible NEKTON-Beta in 225 feet of water. Gas with small amounts of oil was observed issuing from numerous holes. Marine life did not appear to be adversely effected by the seep.

- - - - -

Fourteenth Annual Meeting of the Technical Sub-Committee of the International Groundfish Committee, Seattle, Washington June 20-22, 1973 . . . . .	3
Symposium on Acoustic Methods in Fisheries Research June 19-22, 1973 . . . . .	5
Wildlife Protection . . . . .	7
Bottomfish . . . . .	8
Shellfish . . . . .	9
Mariculture Research and Development (Bartlett Project 4-20-R) . . .	10
Marine Resources Pathology . . . . .	11
Sea Otter . . . . .	11
Abalone . . . . .	11
Pelagic Fish . . . . .	12
Big Game Fish . . . . .	14
Sportfish . . . . .	18
Sportfish Improvement Project . . . . .	20
Environmental Services . . . . .	20
Inshore Fisheries Habitat Evaluation and Monitoring . . . . .	23
Point Arena Ecological Survey (P.G.&E. Contract S1902) . . . . .	24
Kelp Project . . . . .	24
Marine Fisheries Statistics . . . . .	24
Vessels . . . . .	25
Miscellaneous . . . . .	26
Appendices following. . . . .	

Fourteenth Annual Meeting of the Technical Sub-Committee  
of the International Groundfish Committee  
Seattle, Washington, June 20-22, 1973

The Technical Sub-Committee (TSC), Pacific coast groundfish scientists of the states, the National Marine Fisheries Service (NMFS), and Canada, met at the NMFS Northwest Fisheries Center to discuss groundfish matters of mutual concern to Canada and the United States. Members of the International Groundfish Committee, Robert McIndoe, Canada, and John Harville, U.S., and an observer from the International Pacific Halibut Commission also participated in the meeting.

A lengthy agenda included status of stocks of important groundfish, data exchanges, current and proposed groundfish research, foreign fishing, regulations, cooperative programs and recommendations.

The 1972 Pacific coast trawl catch by Canadian and U.S. fishermen was 158.8 million pounds, an increase of 24.5 million pounds or 15.4% over the 134.3 million pound catch of 1971. The 1972 trawl catch was also 5.6% greater than the past 10-year average (1961-1972) of 150.3 million pounds. For the first time in the 14 year history of the TSC, California groundfish landings exceeded those of other areas. In 1972, beside the trawl catch, 14.6 million pounds of groundfish were taken by other gear by coastal fishermen. Of this total, 7.4 million pounds were landed by California fishermen.

Dover sole, rockfish, and Pacific cod were the leading species in 1972 landings; large landing increases occurred for these species. Slight increases occurred for other major species; rock sole, lingcod, and animal food landings declined in 1972.

Pacific ocean perch stocks off the west coast of Vancouver Island and off the Washington-Oregon area remain in depressed condition. The TSC report on ocean perch and catch ceilings recommended last year have been considered by the U.S.S.R. and Japan. While not in total agreement with the report, these countries have agreed to exercise restraint in their north-eastern Pacific fisheries for Pacific ocean perch.

Another species of concern is Pacific cod. Stocks off the west coast of Vancouver Island are undergoing high rates of exploitation by Canadian and U.S. fishermen and management recommendations may evolve from a joint analyses of recent data by Washington and Canadian scientists.

Lingcod stocks off Canada and Washington are depressed compared to stable and good conditions of stocks off Oregon and California, respectively.

In addition to trawl data, exchanges of catch data for species taken in other gear have been implemented.

Groundfish research by U.S. and Canadian agencies remains at the same levels of recent years. Agency staffs range in number from 5.8 to 10 positions. The California staff is the smallest with 2 to 4 positions less than those of other agencies.

Foreign fishing continues to concern the TSC. An increase in Soviet trawling is evident in 1973; sightings indicate a larger fleet this year than that of 1972. The Japanese fleet in the northeastern Pacific remains at the same level of recent years at 42 trawlers and 22 longline vessels.

Input provided to the U.S. and Canada by the TSC for use in negotiating bilateral fishing agreements with the U.S.S.R. and Japan has been useful in achieving conservation measures on rockfish and Pacific hake. Soviet and Japanese fishery agreements for 1973 and 1974 of interest to California are as follows:

<u>U.S.S.R</u>	Limitations in catch of Pacific hake of 150,000 metric tons (331 million pounds).
	No specialized rockfish fishery south of 50° 30' N latitude (Vancouver Island).
	No specialized fishery for flatfish south of 48° 10' N latitude (Cape Flattery, Washington).
<u>Japan</u>	Limitation of Pacific ocean perch catch in the northeastern Pacific not to exceed the level of 1971 (preliminary estimate of 15,000 metric tons or 33 million pounds).

Few changes in groundfish regulations were reported by TSC members. Canada has reinstated their minimum sablefish size of 2-1/2 pounds dressed head off. The only other regulation change reported was our California halibut regulations. Other groundfish regulations beside trawl regulations were reported; these consisted solely of California gill net, trammel net, and trap regulations. Apparently, northern areas have little need for such regulations at the present time.

Cooperative programs on Pacific ocean perch, sablefish, lingcod, Pacific cod, rockfish, and trawl net selectivity were discussed and it was recommended that these programs be continued or implemented. Considering the increase in domestic fisheries and continued foreign fisheries on Pacific coast groundfish stocks, the TSC further recommends that groundfish research be intensified to provide management recommendations in a timely manner.

The fifteenth annual meeting is scheduled for California in June 1974.

.....Tom Jow

Symposium on Acoustic Methods  
in Fisheries Research  
June 19-22, 1973

I presented a paper on Pelagic Fish Program acoustic surveys for anchovies in the California Current System at a symposium on acoustic methods in fisheries research held in Bergen, Norway, June 19-22. All of the prominent experts in this field were in attendance with a total of 52 papers presented. The backgrounds of the group consisted of physicists, acoustic engineers, and biologists interested in using acoustics for assessing fish populations. The papers presented dealt mainly with the many technical aspects pertinent to acoustic surveys, and the results and methods for individual species. Special application of acoustics included luring or repelling fish, observing trawl configuration, measuring trawl efficiency, and long range detection of fish schools (8 miles maximum).

Survey methods considered most effective were counting and integration of signals from fish targets derived by vertical echo sounding. Both methods are most effective when fish are dispersed over wide areas, off the bottom, and not schooled. Both systems require calibration to convert counts or integrated voltages into biomass of fish per square mile.

The accuracy of surveys by these methods depends on two main components, namely instrumentation accuracy which includes exact measurement of equipment parameters including calibration and survey design which must consider fish distribution, behavior, and operational limitations. It was concluded that overall accuracy was likely more influenced by survey design, fish distribution, and behavior than equipment error.

The British and Norwegians are most advanced in development of acoustic methods for assessing fish populations with the Russians, Poles, and Canadians also very much interested. The amount of interest, effort, and money directed toward this approach to resource assessment by these nationalities was highly impressive. The acoustic equipment on their research vessels constitutes a major portion of total vessel cost. Work done by the Fisheries Research Institute at the University of Washington on hake, Pacific herring, and sockeye salmon was on the highest order of sophistication.

The symposium emphasized the major advantages and disadvantages of acoustic surveys. The speed of obtaining results was evident by presentation of population estimates from surveys completed as recently as 3 weeks prior to the symposium. The Norwegians presented an estimated current stock assessment of caplin in the Barents Sea from a radio report from their research vessel which was still at sea. It was felt that the accuracy of acoustic surveys was on par with other means of obtaining population estimates and were cheaper to conduct. Major disadvantages were initial costs for equipment and vessels, unsuitability of some species for this type of assessment, and uncertainties in error estimates due to survey design and equipment calibration.

With establishment of echo counter and integration methods as the major means of acoustic survey, the trend now is toward automating signal processing by magnetic tape recordings which are fed to a shipboard or shore based

computer. Surveys can be conducted using this system, and results obtained swiftly and with a minimum of personnel.

I was greatly impressed by the progress made in the field of acoustics as a fish survey tool since a workshop I attended in Seattle in 1968. This method of assessing fish populations is relatively new but is already firmly established in the northern European countries and is advancing rapidly. I recommend acoustic survey methods be thoroughly investigated by anyone undertaking species population estimates..... Ken Mais

\*Ken Mais attended this meeting on MRC funds.

## 1. WILDLIFE PROTECTION

- A. Canneries: Tuna landings during the month have been excellent from boats of all sizes.

The first commercial albacore landing of the year was recorded on June 22 when slightly over 1 ton of fish was landed at a Terminal Island cannery. The albacore were taken well over 1,000 miles from the coast. The price for albacore had not been set at the time of this report but is expected to be in excess of \$800. per ton.

The first local load of bluefin tuna was landed at a San Pedro fish market on the 23rd of the month. The fish were taken off San Clemente City. Seiners fishing Mexican waters are making good catches of bluefin tuna. Mackerel fishing has been fair at Cortez Bank whenever weather permitted operations.

- B. Market Fish: Salmon landings were extremely good in northern California throughout the month with weather the only limiting factor. Bottomfish landings were also good. In the southern portion of the state, barracuda returned to the commercial catch in sizeable numbers for the first time in several years and brought a price to the fishermen of between 45-50¢ per pound. Scattered small catches of broadbill continue but no large catches have yet materialized.

Bluefin tuna and halibut are also being landed in good amounts at San Pedro and San Diego markets.

- C. Sportfish: Although the take has dropped slightly during the latter portion of the month, southern California anglers continue to enjoy excellent yellowtail fishing. Sportfishing landings from San Diego to Redondo Beach are making excellent catches of these fine game fish, particularly when live squid is available for bait. Barracuda, kelp and sand bass, and bonito as well as an occasional white seabass are also being taken. In northern and central California salmon and rockfish are supplying excellent catches.
- D. Weather: The weather was generally good in the southern half of the state but small craft warnings were displayed over half the month in the northern areas.

- E. Law Enforcement: Eleven abalone fishermen from 4 boats were apprehended at Santa Rosa Island for taking black abalone in less than 20 feet of water. Approximately \$3,000 of black abalones were seized as a result of these arrests.

Extremely low tides resulted in extremely heavy concentrations of persons seeking abalone and clams. It is estimated that there were 10,000 sport abalone fishermen on the Sonoma coast alone, during one low tide. Much needed man-power assistance was supplied by Regions 2 and 3 and approximately 150 arrests were made on the north coast area for abalone, and clam violations. The Pismo Beach area also saw huge crowds and additional patrol was needed.

Three seizures of yellowfin tuna were made during the month for violations of the Federal Yellowfin Tuna regulations and a number of other tuna violations are under investigation. With excellent sport fishing now being enjoyed throughout the state, increased patrol of sport landings and sport fishing vessels was necessary.

- F. Pollution: Marine wardens continue to monitor the oil seep off Coal Oil Point, Santa Barbara County. During the period covered by this report, marine wardens investigated forty pollution incidents. Thirty-six spills occurred in the L.A.-L.B. Harbor area. Seven were from unknown sources involving approximately 10 barrels. Three spills from small crafts totaled 3 barrels. Four U.S. Naval vessels deposited 3 barrels of petroleum products into state waters. Merchant ships accounted for 10 spills of approximately 21 barrels, and shorebased installations were responsible for 11 spills amounting to 56 barrels. An industrial spill in San Diego amounted to 16 barrels, and 2 industrial spills in Orange County amounted to 10 barrels.

There was one successful prosecution for violation of Section 5650 during the month and one complaint was instigated.

## 2. BOTTOMFISH

### A. Fishery

Flatfish: Strong northerly winds limited trawling at times during the month. When the fleet was able to fish, good catches of Dover sole were landed at northern and central California ports. Dover sole continue to be the predominant fish in landings. Moderate landings of sanddab, English sole, petrale sole, and rex sole occurred at northern ports. Flatfish landings were light at ports from Monterey to Santa Barbara.

The overall trawl fishery for 1973 thus far is about 2 million pounds ahead of that of last year. In 1972, record landing of 54.1 million pounds was made.

Roundfish: In the Eureka area, rockfish comprised the bulk of roundfish landings. Canary rockfish was the most abundant species. Bocaccio, olive, vermillion, darkblotched, and splitnose rockfish were also landed. Lingcod and sablefish landings were light in northern California.

The major portion of San Francisco landings consisted of channel rockfish, sablefish and brown rockfish.

At Monterey, Morro Bay, and Santa Barbara good catches of bocaccio were landed. Three Morro Bay trawlers have moved to Washington for the summer to fish salmon.

### B. Research

Flatfish: Twelve northern California tagged Dover sole were recovered in June; all were caught near release areas. Two other tagged Dover sole released off Eureka were taken off Pigeon Point, a distance of over 200 miles. Coastwise movements of this magnitude are rare for Dover sole.

Market sampling of flatfish for age and size composition, analyses of flatfish age samples, and logbook-ticket editing were accomplished for the month. A report on California trawl fisheries and their investigations in 1972 was prepared for the 14th annual meeting of the Technical Sub-Committee of the International Groundfish Committee.

Roundfish: Landings of rockfish were sampled for species composition and lingcod length frequencies were obtained at major ports.



Analyses of December 1972 N. B. SCOFIELD cruise data were continued. Gear selectivity of 3-inch and 5-inch mesh gill nets is quite evident with larger sizes of rockfish taken by the latter gear. Depth distributions of *Sebastes flavidus*, yellowtail rockfish and *S. paucispinis*, bocaccio have been examined. Sizes and abundance of yellowtail rockfish increase with increasing depth while no differences in either attribute were found for bocaccio caught at the various depths from 20 to 60 fathoms.

### 3. SHELLFISH

#### A. Fishery

Crab: The crab landings for the San Francisco area through May totaled 287,977 pounds. Landings for the month of May were only 1,902 pounds. Crab landings for the Morro Bay area through May totaled 37,709 pounds.

Crab landings for northern California through mid-June totaled 1,090,696 pounds. Landings for the month of May totaled only 57,065.

Shrimp: No fishing has occurred in Area A so far in June. Most northern California shrimp fishermen have been working out of Port Orford or Coos Bay; several of these boats are expected back in California by July 1.

Two vessels explored for shrimp in Area B-1 (Fort Bragg) on June 12 and 17. Catches were poor and only 3,410 pounds were landed. Best catches came off Cape Vizcaino in 80 to 86 fathoms. No more fishing has taken place.

No effort has been reported from Area C (Morro Bay-Avila) and Area B-2 (Bodega Bay) is closed.

Clams: At Eureka two series of low tides were monitored for razor clam catch and effort data at Clam Beach. A total of 159 clam diggers interviewed dug an average of 15.8 clams apiece. Mean size of 1,896 clams measured was 88.5 mm. Last year in June, 120 clam diggers interviewed averaged 4.1 clams apiece with a mean size of 102 mm.

Oysters: At Eureka, Coast Oyster Company has reduced its harvest due to the soft condition of the oysters.

Harvesting continues at Tomales Bay and Drakes Estero. The oysters are in good condition. No harvesting has been reported at Morro Bay.

Two truckloads of Pacific seed oysters were shipped to Johnson Oyster Company at Drakes Estero. There was a total of 3,250 strings equivalent to 584 standard cases. The seed was inspected for pests upon arrival.

#### B. Research

Crab: In central California the majority of the month was spent working on the crab bulletin. Forty petrale and English sole

stomachs were examined for occurrence of 1973 year class crabs. First and second instar crabs were found in 20 of the fish stomachs. The average sizes of the instars were 7.4 mm for the first and 10.7 mm for the second. A sampling trip for 1973 year class crabs in San Pablo Bay was made aboard the bay shrimp boat JEWEL K. Two 30 minute tows with an 18 foot beam trawl produced approximately 670 crabs of the year. All of the crabs were in the fourth and fifth instars with average sizes of 23.3 mm and 31.5 mm, respectively.

Bay trawls were conducted in Humboldt Bay for the crab relative abundance study, collection of crab specimens for studies of gonadal development, and crab tagging.

A total of 1,100 crabs have been tagged in Humboldt Bay to the present.

Shrimp: Bay shrimp samples taken aboard the JEWEL K. were sexed, measured and weighed. Approximately 41 percent of the females were gravid. Heads-on counts per pound ranged from 271 to 382.

Oysters: In Humboldt Bay mortality among experimental and commercial populations of oysters during this period was negligible.

Negligible mortality has been observed so far this year on commercial oysters in Drakes Estero. Dissolved oxygen determinations in the vicinity of the oyster racks revealed 7 ppm in Drakes Estero and 5.5 ppm in Tomales Bay on June 18.

#### 4. MARICULTURE RESEARCH AND DEVELOPMENT (Bartlett Project 4-20-R)

A mariculture rack and ground plot station was constructed at Elkhorn Slough in cooperation with the MRR Shellfish Program. This station is for the growing, conditioning and the holding of shellfish stock. Representative samples of oyster progeny from our disease resistant strain study will be held at the station in the near future.

Red abalone breeding stock was obtained from the Point Arena area in a cooperative effort with the P.G. & E. contract study. We have not yet obtained fully mature breeding stock for use in spawning.

Adult red abalone temperature tolerance studies were in progress during the month.

Research on isolation of a diatom suitable as food for juvenile red abalone continued during the month.

Rough drafts of two papers, one describing the Marine Culture Laboratory facilities and operation and the other on mass cultivation of the spot prawn were completed and are undergoing editing.

Engineering assistance was received to assist us in planning for upgrading and relocation of the on-site residence to an area near the southern boundary of the property.

## 5. MARINE RESOURCES PATHOLOGY

Bottomfish samples were collected from San Pablo and Monterey Bays during June for pathological examination. Similar samples were procured from Humboldt Bay during late May and early June. A total of 5,231 individuals representing 23 species was examined from Humboldt Bay with English sole comprising 63% of the samples. Thirty-three English sole were noted with neoplastic-like lesions for an incidence of 0.9% (range 0.2% to 5.4% from station to station). The two San Pablo Bay samples consisted of 1,374 individuals representing 17 species with English sole being the most abundant species. No abnormalities were noted. A total of 222 fish was taken from Monterey Bay with Pacific sanddabs being the most abundant species. No abnormalities were noted.

Routine inspection of seed oysters (*Crassostrea virginica*, *C. gigas*, *C. commercialis*, *Ostrea lurida*, and *O. edulis*) and seed clams (*Tapes semidecussata*) from Pacific Mariculture, Inc. was completed and no pathological conditions were observed.

## 6. SEA OTTER

A considerable amount of time was spent on continued rewriting of the Sea Otter Report.

Three sea otter carcasses were prepared for delivery to Dr. Roy Horst of the University of Vermont, who picked them up on June 18. These carcasses, issued by Departmental permit to the University, will be used for kidney and other studies. Two additional pairs of kidneys were also provided.

Sea otter carcass recoveries dropped to 2 during May, but totaled 8 during the first 3-1/2 weeks of June. This is considerably lower than for the period January-April of this year when an average of 14 per month was recovered.

## 7. ABALONE

Most of the month was spent solving problems with the R/V MOLLUSK. After considerable maintenance work in the boat yard, tying the vessel up for over a week, the MOLLUSK developed serious engine problems, necessitating a new engine. This has cut seriously into our southern California scheduled abalone cruises for this period.

One week was spent at San Clemente Island aboard the R/V KELP BASS to examine abalone populations and select tagging sites for pink and green abalone. The trip was very successful. Additionally, we were able to bring back juvenile pink and green abalone for growth rates in our laboratory and 13 gravid female lobsters, and adult pink and green abalone for the Mariculture Laboratory.

## 8. PELAGIC FISH

### A. Fishery

<u>Landings in tons</u>		<u>January 1 - June 30</u>			
<u>Species</u>	<u>1973*</u>	<u>1972</u>	<u>1973*</u>	<u>1972</u>	<u>10 yr. mean 1962-1971</u>
Anchovy	--	444	40,732	33,300	12,504
Mackerel, jack	3,169	862	4,086	8,473	14,092
Mackerel, Pacific	--	0	1	25	2,198
Sardines	--	21	28	44	915
Squid	--	<u>3,754</u>	<u>3,666</u>	<u>8,556</u>	<u>6,366</u>
TOTAL	3,169	5,081	48,513	50,398	36,075

\*Estimated. Accumulated landings are revised monthly.

### B. Fishery Research Monitoring

Anchovy: Adjusted figures for the 1972-73 reduction season show that 377 tons were landed at Moss Landing and 75,247 tons were processed at San Pedro and Port Hueneme.

Jack Mackerel: The San Pedro fleet expended limited effort on jack mackerel but the few boats that went out had good success at Cortes Bank.

Live Bait: During the past month most live bait fishermen were able to meet their commitments but not without some difficulty. In many cases a large amount of time and effort were expended in locating and catching bait. A major problem occurring for several weeks has been the abundance of small anchovies ("pinheads") and the absence of larger fish in near shore waters. These small fish are not satisfactory as hook bait and can only be used for chumming. Santa Monica Bay has been an exception with larger fish available for most of the month. The demand for anchovies which typically increases during the month of June was alleviated somewhat by the increased use of squid for bait by most sport boats.

### C. Biological Studies

Jack Mackerel Tagging Program: This month 1,514 jack mackerel and 177 Pacific mackerel were tagged. Tagging efforts were concentrated in the La Jolla area and in Santa Monica Bay. There have been 18 tagged Pacific mackerel returns with only one fish showing any significant movement, that being from San Onofre to La Jolla over a period of 224 days. There were 3 tagged jack mackerel returns, 2 of which had been at liberty approximately one year and had been recaptured at their point of release, Cortes Bank. The third return was tagged, released and recaptured 10 days later off of Guadalupe Island, Baja California, Mexico.

#### D. Fisheries Resources Sea Survey (M63R)

A squid survey of Monterey Bay was completed June 8. Very few squid were found and specimens taken in midwater trawls and at night light stations were small. Numerous bottom trawls failed to produce squid eggs. An echo sounder survey of Monterey Bay located concentrations of squid on the bottom between Monterey and Pt. Pinos in 15 to 20 fathoms of water. Two midwater trawls in that area produced small *Loligo*. Poor commercial squid fishing during the survey period reinforced our findings.

A total of 6 deep tows were made off central California between Monterey and Morro Bay to assess distribution and abundance of other pelagic cephalopods. Samples are currently under analysis.

A total of 38 Pacific herring were incidentally tagged and released in Monterey Bay.

Susumu Kato of National Marine Fisheries Service and Dr. Anatole S. Loukashkin of the California Academy of Sciences participated in the cruise.

The ALASKA departed June 21 for an acoustic survey of the anchovy population off central California. The purpose of this cruise is to assess late spring and early summer distribution and abundance of anchovies and to gather data for comparative regional biomass estimates.

Ken Mais departed June 16 for Bergen, Norway where he presented a paper at a symposium on acoustic methods in fisheries research sponsored jointly by FAO, the International Council for Exploration of the Sea, and the International Commission of North Atlantic Fisheries.

Sea Survey Data Analysis: A considerable amount of time was spent in preparing for and participating in two cruises. Large amounts of carangid fishes were captured and sampled.

The rest of the month was spent studying past jack mackerel and Pacific mackerel data.

## 9. BIG GAME FISH

### A. Albacore - Research

Life History: Age and growth--length frequency measurements were obtained from 200 albacore by Department of Fish and Game personnel. Forty scale samples were obtained.

Population Dynamics: We continued distributing the new log books. One log was taken.

Exploratory Fishing: By the end of June the 12 vessels chartered by the American Fisherman's Research Foundation had caught 10,238 fish and of these, 15% or 1557 fish were tagged and released. Most of these fish were caught in 65° - 68° water WNW of Erben Bank. The fish weighed from five to thirty-five pounds, but were generally small.

Fisheries: Except for a few fish caught 65 miles off the Rockpile (200 miles WSW of Cape Mendocino), all catches have been made several hundred miles offshore, well out of range of most sport and commercial boats. Commercial boats have been making final preparations for the season or working their way north.

At this time, the price paid to the fisherman has not been settled.

### B. Bluefin Tuna - Research

Life History: Age and growth--Five length-weight-scale samples were obtained from bluefin landed at Terminal Island canneries. Vertebrae from 20 bluefin tuna were collected for examination and for possible use in bluefin tuna age determination.

Fisheries:

Sport: Fair to good catches of bluefin were reported by San Diego partyboats in June.

Commercial: Purse seiners fishing Baja California waters made their first good catches of bluefin up to 90 miles west of Cape San Lazaro in the second week of June. Over 750 tons of bluefin were landed during June, compared with a total of 28 tons landed prior to June. Local seiners have caught and landed 30 tons of small bluefin (10-15 lbs.).

### C. Pacific Bonito - Research

Population Structure: A total of 200 eye lenses were collected this month for population analysis by electrophoresis. Last year's samples are presently being run.

Life History: Age and growth--All otoliths and vertebrae from the 1969-1973 samples have now been read and analyzed. Three otolith and two vertebrae samples were collected this month.

Migration--In June, 66 bonito were tagged and released from partyboats in the area from La Jolla to Hermosa Beach. Twenty-five tags were returned this month with one having been out 19 months. The bonito tagging cruise aboard the N. B. SCOFIELD returned from a 21 day trip to Baja California. Project personnel tagged 74 bonito, ranging in size from 41 to 75 cm. Computer analysis of the 1968-1973 bonito tagging study has been completed through use of the program Tagret III.

Resource Management: Partyboat sampling--In June, 259 bonito were measured. They ranged in size from 38 cm to 49 cm and were 0 to I years in age.

Preliminary results indicate that anglers caught 2 age groups of bonito (0-I) this month, with group I providing more than 87% of the catch. Fishing effort was 106% greater in May than in April, while the catch (34,915) was 166% greater in May than in April (13,087). The abundance index (0.69) for May indicates that anglers found bonito more abundant during April when the index was only 0.53.

<u>JUNE</u>			<u>MAY</u>	
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>	<u>Estimated catch (nos.)</u>	<u>Abundance index</u>
0	13	24	8,380	0.17
I	87	76	26,535	0.52
II	0	0	0	0
III	0	0	0	0
			34,915	0.69

Market sampling--One length frequency sample was taken from the fresh fish markets this month. It consisted entirely of one year old fish.

#### Fisheries

Sport: The sport catch of bonito increased slightly this month.

Commercial: Purse seiners landed over 1,400 tons of bonito at canneries and fresh fish markets this month.

#### D. Billfish - Fisheries

Sport--One broadbill was landed on the 11th of the month.

Commercial--Catches of swordfish slowly increased this month. Although we have been unable to measure any fish this month, the fishermen feel that most of the fish so far are smaller than last year.

#### E. California barracuda - Research

Life History: Migration--A total of 142 barracuda was tagged and released by project personnel aboard Department research vessels and southern California partyboats in June. No tag recoveries were recovered. Efforts to inform fishermen and partyboat operators about barracuda tagging operations were increased.

Resource Management: Partyboat sampling--The thirteen length-frequency samples of barracuda obtained aboard partyboats and Department research vessels during June produced a total of 226 barracuda measured. These fish ranged in size from 45 to 81 centimeters total length (average length = 64 cm) and were II to VII+ years in age.

Preliminary results indicate that age groups II through IV provided nearly 83 percent of the partyboat catch in June. By comparison these age groups contributed more than 95 percent in May.

Figures for June are incomplete; however, the fishing effort in May (46,062 angler days) was 86 percent greater than during April and anglers caught 58 percent more barracuda.

About 87 percent of the barracuda sampled aboard partyboats during June were shorter than the legal limit and were released. By comparison, in May about 96 percent were shorter than the legal limit, and released.

<u>JUNE N=226</u>			<u>MAY N=201</u>	
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>	<u>Calculated catch*</u>	<u>Abundance index</u>
I	0	0	0	
II	17	47	41972	0.912
III	27	31	27683	0.601
IV	39	17	15181	0.330
V	12	3	2679	0.058
VI	4	1	893	0.019
VII+	1	1	893	0.019
	100	100	89301	1.939

\* includes released fish

Market sampling--Barracuda landed at the fresh fish markets also were sampled in June. The 210+ fish measured ranged 67 to 105 cm in length and IV to VII+ years in age. The barracuda averaged 3.5 pounds and 75 cm.

Preliminary results indicate that market fishermen harvested 4+ age groups of barracuda. Five year old fish predominated in the catch during both May and June.

Preliminary figures indicate that during June, commercial fishermen delivered 7969 pounds of barracuda compared with 2752 pounds for May and 1,074 pounds for April.

<u>JUNE N=</u>		<u>MAY N=</u>
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>
I	0	0
II	0	0
III	0	0
IV	23	22
V	42	37
VI	19	20
VII+	16	21
	100	100



## Fisheries

Sport: Barracuda sport action was moderate during June as effort was directed at increasingly abundant yellowtail. During May, 36 percent of the reported partyboat catch was made by boats from San Diego-Mission Bay, 24 percent from San Pedro-Long Beach, 20 percent from Redondo Beach-Santa Monica, 12 percent from Dana Harbor-Oceanside and 8 percent from Huntington-Newport Beach.

Commercial: Landings of barracuda at the fresh fish markets increased during June with most landings being made at the San Pedro fresh fish market by local gill net fishermen.

### F. White seabass - Research

Resource Management: Partyboat sampling--No white seabass were measured in June.

Figures for June are incomplete; however, the fishing effort in May was 154 percent greater than in April and anglers caught 22 percent less white seabass. In addition, the abundance index of 0.004 for May indicates that partyboat anglers found white seabass less abundant than during April.

Market sampling--White seabass landed at the fresh fish markets also were sampled in June. The 29+ fish measured ranged 71 to 132 cm in length and 4 to 13 years in age.

Age group	<u>JUNE</u>	<u>MAY</u>
	% age composition	% age composition
0	0	0
I	0	0
II	0	0
III	0	0
IV	3	5
V	28	3
VI	0	24
VII	7	21
VIII	14	19
IX	10	14
X	7	11
XI	10	0
XII	7	0
XIII+	14	3

## Fisheries

Sport: Small catches were made in several areas during the month.

Commercial: Some local fish began to show in the market landings.

G. California yellowtail - Research

Resource Management: Partyboat sampling--Yellowtail caught by the partyboat anglers were sampled in June. The 591+ fish measured ranged 48 to 131 cm in length and 1 to 12+ years in age. The 131 cm giant was a 67 pounder brought in from Alijos Rocks, Baja California by a long range boat.

Preliminary results indicate that anglers set their hooks in 11 age groups of yellowtail (I-XII+) this month with groups II, III, and IV providing 85 percent of the catch. By comparison these age groups contributed about 17 percent in May and 20 percent in April.

Figures for June are incomplete; however, the fishing effort in May was 257 percent greater than in April and anglers caught 1,359 percent more yellowtail. In addition, the abundance index of 0.56 for May indicates that partyboat anglers found yellowtail more abundant than during April.

<u>Age group</u>	<u>JUNE</u>		<u>MAY</u>	
	<u>% age composition</u>	<u>% age composition</u>	<u>Estimated catch (nos)</u>	<u>Abundance index</u>
0	0	0	0	0
I	7	1	258	0.006
II	28	5	1291	0.028
III	39	7	1807	0.039
IV	18	5	1291	0.028
V	4	18	4646	0.101
VI	1	41	10582	0.230
VII	1	16	4130	0.090
VIII	1	4	1032	0.022
IX	0	2	516	0.011
X	-	1	258	0.006
XI	-	0	0	0
XII+	1	0	0	0

Market sampling--No yellowtail were measured at the fresh fish market this month.

Fisheries

Sport: The exceptional catches of yellowtail experienced during the first part of the month slowed towards the end of the month. However, catches were still at levels that would be considered good in an average season.

Commercial: Not much action.

10. SPORTFISH

A. Partyboat

Halibut sampling at sea began for the 1973-1974 halibut trawl fishery season. Two trawlers are fishing and it is expected that another will begin soon.

Yellowtail fishing was good with 23,810 yellowtail landed during the month and as many as 3,000 fish in one day. Higher than mean water temperatures during the period May 1972 through April 1973, indicate this year's yellowtail catches may hit near record proportion if trends continue as in the past years of 1957, 1959, and 1960.

In contrast, cool water salmon were landed in southern waters--one at San Diego, 2 at oceanside, 2 at Newport, 13 at San Pedro, and 13 at Santa Monica Bay.

The preliminary report of the partyboat catch and effort through May 1973 compares with 1972 as follows:

<u>Preliminary Catch</u> <u>May, 1973 only</u>	<u>Through May</u>	<u>1973</u>	<u>1972</u>
315,243	Rockfish	1,140,446	1,116,885
40,411	Kelp & sand bass	79,984	74,941
34,915	Bonito	97,587	4,515
25,810	Yellowtail	32,262	8,221
23,612	Halfmoon	37,583	12,515
14,323	Pacific mackerel	38,213	68,786
8,696	Salmon	37,799	63,141
3,110	Barracuda	8,579	7,200
1,228	California halibut	2,654	2,179
123	Striped bass	588	1,265
14	Sturgeon	293	483
496,349	Total number fish	1,570,844	1,463,674
70,476	Total number anglers	217,014	206,297

#### B. Central California Marine Sportfish Survey

Aging, weight-length, maturity, and meristic studies were continued on the kelp greenling.

Analyses was continued on the 1972 skin diving survey.

Bulletin 158 figures are being prepared and Miller met with Doug Martin and the State Printer on final details of printing.

A skin diving meet at Shell Beach was attended by all project personnel.

Miller attended a staff meeting at Long Beach on June 18.

Article on skin divers, abalone, and sea otters was submitted for *Outdoor California*

## 11. SPORTFISHING IMPROVEMENT PROJECT

Fishing Maps: Project personnel spent 5 days working with the delineator in regard to the tables and details of the San Diego-Orange Counties fishing map. The text is nearing completion.

Sportfish Catch Assessment: A sampling plan to satisfy the immediate objectives of an assessment of the southern California sportfishery (other than partyboat), is under test. Logistical and survey problems were apparent in trips to San Diego and Ventura County, and in visits to 6 piers and 2 boat launching ramps.

General: The Natural Resources Office, Camp Pendleton, agreed to conduct temperature and salinity studies of the Santa Margarita estuary-lagoon. A Camp Pendleton plan to dig thousands of feet of channel in the estuary basin offers possibilities for an expanded fishery.

Personnel: Paul Gregory, on military leave, conducted a water pollution control class for Coast Guardsmen at Alameda.

## 12. ENVIRONMENTAL SERVICES

### Southern California

#### A. Water Quality and Pollution Activities

Waste Discharge Requirements: Four proposed waste discharge requirements were reviewed. We were in agreement with all the proposed requirements.

Granite Canyon Bioassay Laboratory: A preliminary design plan for the proposed Bioassay Laboratory was prepared and transmitted to the Engineering Section. An initial report describing the project and its impact on the environment was prepared for staff.

City of San Francisco: Recommendations were transmitted to the Wildlife Protection Branch concerning permit application for the City of San Francisco to conduct pre-discharge trapping and trawling studies in the Gulf of the Farallones.

Report Review: Concern with Associated Monterey Bay Acres Governments (AMBAG) recommendations for Waste Water Management Plan were expressed in a report review.

No comments were generated in a cursory review of AMBAG's Oceanographic Survey.

The Federal Environmental Protection Agency's Ocean Dumping Criteria were reviewed. Comments regarding spoil areas methods of determining polluted dredged spoil were forwarded to staff.

The Water Quality Section of the final draft of the Humboldt Bay Report was reviewed.

Pollution Control Activities: Los Angeles Harbor was quarantined for water contact activities when raw sewage was discharged into the main channel for five days. Failure of the system leading to

the Los Angeles City Terminal Island sewage treatment plant was the cause. Caged fish placed near the discharge did not exhibit adverse physical effects due to the discharge. When conditions subside, bottom organisms will be checked for adverse affects.

Public Utilities Commission, State and Regional Water Quality Control Board and Department staff met in San Francisco regarding the draft EIS for San Diego Gas and Electric Company's proposed Encina #5 power generating plant. The need for presenting alternative discharge methods was explored.

#### B. Water Development Activities

Army Corps of Engineers: Eleven Public Notices were reviewed during the report period.

The Department's position regarding dredge disposal sites in San Diego Bay was reiterated at a meeting attended by Colonel Roper of the Los Angeles District and the Director and their staff members.

Comments were provided Region 5 for review of the Huntington Beach Generating Station Units 6 to 11.

Constructing activities of an alternate sewer force main in north San Diego Bay were recommended for seasonal restrictions. A portion of the project construction in eel grass beds should be conducted between October 31 and April 1.

Proposed Point Reyes Wilderness: We concur with the proposal and suggest improvements to reflect management of fish and wildlife resources.

Coastal Zone Commissions: A meeting was held with the staff of the Central Coast Commission to explore liaison procedures.

The North Coast Commission's regular meeting at Fort Bragg was attended. The Department presented a statement regarding its interest and desire to participate with the Commission in its permit and planning activities.

Miscellaneous Activities: Carlisle prepared the 1974 grunion schedule for distribution.

#### Northern California

Waste Discharge Requirements: None were received.

Report Review: Basin Planning--The AMBAG Water Quality Management Plan and Oceanographic Survey of Monterey Bay Reports were reviewed. Concurrence with the recommended waste water management plan was expressed. No comments were generated from a limited review of the Oceanographic Survey Report.

Humboldt Bay Report: The water quality section of the final draft was reviewed. Comments were prepared to clarify several sections.

EPA Ocean Dumping Criteria: Comments were prepared on the proposed method of determining polluted dredged spoils.

Miscellaneous Water Quality Activities: Mendocino City Community Service District Wastewater Project--Our objection to the issuance of the Corps of Engineers' permit was removed based on written assurance resolving our concerns with construction methods and mitigation measures. A letter clarifying the timing for specific mitigation measures and contract specifications was sent to the project engineer.

Granite Canyon Bioassay Laboratory--Preliminary design plans for the proposed bioassay laboratory were prepared and transmitted to the engineering section. An initial report describing the project and its impact on the environment was prepared. Based on the type of project and the determination of no significant environmental impact, a recommendation was made to place the project in the categorically exempt class 3 for new construction projects.

Recommendations were transmitted to the WPB concerning a permit for the City of San Francisco to conduct pre-discharge trapping and trawling studies in the Gulf of Farallones.

#### B. Water Development Activities

Army Corps of Engineers: Two Public Notices (73-98, 73-99) were reviewed; neither required comment. The Corps report on West Coast Deepwater Port Facilities Study was reviewed. Specifications for repairs to South Jetty, Humboldt Bay, were reviewed and determined to be without significant impact on living marine resources.

Coastal Zone Conservation Commissions: Two application summaries from the Central Coast Commission were reviewed at Region 3 request; no significant impact was determined. Information was coordinated with Region 1 regarding a proposed expansion of resort facilities on the Smith River.

Meetings were held with the Central Coast Commission Executive Director to establish working relationships, and with representatives of Federal, State and local conservation agencies and State and Central Coast Regional personnel to develop planning input activities. Information about marine resources within the North Central Region was provided for Region 3 for future presentation before that commission.

State Lands Commission: Information was prepared and forwarded to Regions 1 and 3 to assist State Lands Commission in identification of environmentally unique state lands.

Miscellaneous Activities: Four application summaries of the San Francisco Bay Conservation and Development Commission (BCDC) were reviewed; none required comment. Technical information on commercial fish landings and activity were provided to the Planning Director, City of Sausalito. A draft letter proposing eelgrass habitat manipulation was reviewed and commented upon.

### 13. INSHORE FISHERIES HABITAT EVALUATION AND MONITORING

The majority of the month was spent on SWRCB contract work. Survey reports for discharges at Monterey and Seaside have been completed and our last reports for the Huntington Beach area discharges are nearing completion.

Project personnel attended a one-day demonstration of the Naval Undersea Center's Submersible Program at San Clemente Island.

One day was spent at White's Point for a tide pool life demonstration given to personnel from Los Angeles Public Schools Buccaneer Camp program.

Samples of Quahogs (*Venus mercenaria*) and common littleneck clams (*Protothoca staminea*) were collected from Colorado Lagoon in Long Beach for bacteriological and heavy metals determinations to be made by the State Department of Public Health, Los Angeles.

On June 10, Senior Marine Biologist Mel Odemar inspected the oil and gas seep off Coal Oil Point near Santa Barbara. The inspection was made from the two man submersible NEKTON-Beta in 225 ft. of water. Gas with small amounts of oil was observed issuing from numerous holes. Marine life did not appear to be adversely effected by the seep.

The MRR Lobster Management Committee met in June to prepare a two year study of the southern California lobster resource and its fisheries. The Committee will present management options and recommendations to the Department, June, 1975.

Also in June, members of the Committee met with Oceanographer Ignacio Felix Cota and biologist Jorge Pineda Barrera of the Centro de Promocion Pesquera de Ensenada to discuss the Baja California lobster fishery. This fishery produces ten times more than the lobster fishery of southern California.

A planning meeting of the Committee is scheduled for July. In anticipation of this meeting "mock-ups" of logbooks, an atlas, a subject bibliography and systems of procedure are being prepared.

### ENVIRONMENTAL AND BEHAVIORAL STUDIES OF COASTAL SPORT FISHES

Duffy and Odenweller attended a demonstration of NUC Submersible capabilities at San Clemente Island.

Duffy attended a diving safety board meeting in Monterey and a certification school in San Diego.

The two tire reef units installed for stability tests appear unaffected even by the comparatively large swells of two weeks ago. Two additional units were installed, and the four will be assembled into our proposed basic configuration.

One day was spent at Catalina Island collecting sheephead for life history studies, 48 specimens were collected.

One day was spent at Zuma Beach undergoing surf entry refresher training.

14. POINT ARENA ECOLOGICAL SURVEY (P.G. & E. Contract S1902)

Project personnel spent most of the month working with fish, invertebrate and algae data from Point Arena for their final report. Gotshall, Lea and Laurent went to Point Arena from June 11 to June 15 on what was intended to be the last field trip to the area. The purpose of the trip was for diving to photograph the subtidal areas, collect abalone for the Marine Culture Laboratory and to return the project boat SEBASTES to Monterey. Unfortunately, after a first day of good weather, small craft warning conditions prevented further work and return of the boat. This work was completed on another trip late in June.

15. KELP PROJECT

Seven days were spent transplanting kelp from Catalina Island to Abalone Cove. A total of 278 plants 3 to 10 meters in length were transplanted.

Our plants in Abalone Cove are growing very well, with few signs of fish grazing. Many of the chains used to attach the plants are being lifted off the bottom by the kelp. Cement anchors are now being attached to the chain to counter-act this problem.

Project studies on opaleye, *Girella nigricans* and halfmoon, *Medialuna californiensis* are continuing.

Seven man-days were spent compiling information for a meeting with KELCO to discuss the company's liming operations.

16. MARINE FISHERIES STATISTICS

- A. Source Documents: The following source documents were edited: May trawlers, cannery sportcatch and bait receipts.

Work in progress is as follows: editing May market, June sportcatch, cannery and bait.

The May marine sportcatch letter was prepared and mailed. Delinquent partyboat lists were prepared and sent to operators and wardens.

- B. Machine Data Processing: The following regular reports were compiled: 1972 Annual Trawlers, April trawlers, May marine sportcatch, salmon, striped bass, Pacific mackerel, cannery, jack mackerel, anchovy reduction and processor, 1972 annual live bait.

Special jobs completed were: crab cruise data deck additions, 1961 trawler catch/effort summary, anchovy sampling stratum deck, 1971-72 season report on lobster.



C. Licenses and Registrations

The shrimp permittee list was prepared and mailed on June 1. Master list changes were sent to Sacramento and new master lists sent to field offices.

Boat registrations and licenses continue to run ahead of last year's. Wholesale dealer license renewals are also heavy. Approximately half of the firms had reapplied by the 26th of the month.

- D. Information: The following reports were decoded and distributed: April statistics, May cannery and marine sportcatch, and 1972 annual trawlers.

May's tuna letter was mailed and the April commercial cumulative catch by region report along with the final issues of the Department of Commerce California Landings, December, 1972. Hereafter since the discontinuance of California Landings, our mailing list will include all recipients of that publication.

Bear tag questionnaire reports were prepared for Rod Goss of Game Management.

- E. Fishery Surveillance: Field contacts were somewhat limited as the field man was loaned out on diving assignments.

- F. NMFS Commercial Fisheries Survey: Work was begun on compilation and summarization of comments, complaints, and suggestions from the questionnaire survey.

Report A still remains incomplete but the computer difficulties now appear to be resolved and should be completed soon.

17. VESSELS

ALASKA: From the 1st through the 8th the ALASKA engaged in a squid survey off Monterey Bay. From the 18th through the 30th the vessel engaged in anchovy survey off southern California coast. During the balance of the month the crew was on CTO.

N. B. SCOFIELD: The vessel returned to San Pedro on the 1st from a two week Big Game survey off Baja California. During the balance of the month the crew was on CTO or engaged in ship maintenance.

KELP BASS: From the 4th through the 8th the vessel conducted mackerel tagging off southern California coast. From the 11th through the 15th and the 18th through the 22nd the vessel conducted a kelp transplant from Catalina to Palos Verdes Peninsula.

From the 25th through the 29th abalone and lobster study off San Clemente Island was conducted.

## 18. MISCELLANEOUS

### A. Meetings, Talks and Visitors

- May 31 -Phillips testified at South Central Coastal Commission meeting, Long Beach combined cycle power plant--Terminal Island.
- June 1 -Gates, Kaneen, Odemar, Kanig, Wilson, Haaker, and Martin met to discuss liming activities in southern California.
- June 6 -Carlisle and Young met with Mssrs. Usher, Bernstein and Sherborn to discuss fisheries exhibits for Marine World in Florida, Long Beach.
- June 8 -Gotshall attended a Diving Safety Board meeting in Monterey, and Lea, with Houk, met with Dr. William Eschmeyer, California Academy of Sciences, and Dr. Lloyd Chen, U.C., San Diego, to collect rock-fishes for systematic study at Monterey.
- June 11 -Carlisle attended the South Coastal Zone Commission meeting--Long Beach.
- June 11 -Frey attended anchovy economic seminar.
- June 13 -John Duffy attended the Ventura County Fish and Game Commission meeting.
- June 14 -Odemar, Hardy, Duffy, and Odenweller attended a demonstration of manned and unmanned submersibles by the Naval Undersea Center at San Clemente Island.
- June 18 -Gates and staff attended MRR Staff meeting--Long Beach.
- June 19 -Frey, Odemar, and Bell met with biologists from the Centro de Promocion Pesquera de Ensenada to discuss lobster and abalone research.
- June 19 -Dr. Dov Grajcer, National Marine Fisheries Service Galveston, Texas, toured the Marine Culture Laboratory and gave a slide presentation of ongoing activities at Galveston.
- June 19 -Jow met with Jim Buss, University of Washington, NORFISH; Gene DiDonato, Washington; Jim Meehan, Oregon to discuss standardized trawl data procedures, Seattle.
- June 19 -Carlisle attended the Corps of Engineers meeting on proposed deepwater ports--Long Beach.

June 19 -Moe and Odenweller viewed videotapes of the submersible operations in the Santa Barbara Channel at State Lands Commission offices in Long Beach.

June 20-22 -Jow participated in the 14th annual meeting of the Technical Sub-Committee of the International Groundfish Committee at Seattle.

June 21 -Odenweller spoke to a CSULB class on diver sampling techniques.

June 22 -Lea flew to San Jose, Costa Rica, to attend the week-long annual meeting of the American Society of Ichthyologists and Herpetologists.

June 26 -Frey presented a program to 38 members of the Rolling Hills High School Oceanology class.

June 27 -Frey and Spratt met with Dr. Thomas Thompson at California State University Marine Laboratory, Moss Landing to discuss squid research program.

June 28 -Frey and Miller met to discuss manuscript of Fish Bulletin 158.

June 29 -Gates, Frey, Ebert, Heimann, and Petrovich met in Menlo Park to discuss Bartlett Bill Projects.

*Leo Pinkas*

Leo Pinkas  
Acting Regional Manager

MRR-LB/200  
7-6-73/cc

# WILDLIFE PROTECTION BRANCH MONTHLY REPORT FORM

Fill-In Section

Region MRR

Report for Month of JUNE

## A. RESERVE WARDEN ACTIVITIES

1. Number of patrols made by reserve wardens	<u>5</u>
2. Hours worked	<u>43</u>
3. Arrests or citations issued by reserve wardens (Wardens not present)	<u>0</u>
4. Arrest assists or citations issued by reserve wardens (Wardens present)	<u>23</u>
5. Personal vehicle miles traveled on patrol	<u>0</u>
6. Personal vehicle miles traveled to and from assignment	<u>238</u>

## B. ARREST REPORT

Number of persons arrested as compared to same periods last year:

<u>248</u>	<u>404</u>
Same Month Last Year	Current Month
<u>1492</u>	<u>1756</u>
Total Arrests Same Period Last Year	Total Arrests This Year

Remarks - (To explain any marked changes in above totals)

Fines paid .....	<u>\$ 8,953.00</u>	<u>\$11,992.00</u>
	Same Month Last Year	Current Month
Total fines to date.....	<u>\$54,302.50</u>	<u>\$50,045.00</u>
	Same Period Last Year	Same Period This Year

Remarks (To explain any marked changes in above totals)

Wildlife Protection Branch Monthly Report - Page 2

Jail days served.....	20
Jail days suspended.....	125
Cases dismissed.....	66
Cases in which all of fine was suspended.....	5
Juvenile cases turned over to juvenile authorities or parents contacted.....	2
Hunting licenses revoked by court.....	
Hunting licenses suspended by court.....	
Sport fishing licenses revoked by court.....	
Sport fishing licenses suspended by court.....	

Summary: Following is the number of violations prosecuted against type of violation.

Hunting, no license.....	Angling, no license.....	207
Waterfowl.....	No inland stamp.....	
Deer.....	Trout.....	
Pheasant.....	Striped Bass.....	
Resident small game.....	Other inland fish.....	
Doves and pigeons.....	Angling more than one rod.....	6
Mountain lion.....	Clams and shellfish.....	127
Bear.....	Commercial abalone.....	4
Raptors.....	Commercial lobster.....	5
Loaded gun in car.....	Commercial fish.....	2
Baited pond shooting.....	Commercial fish records.....	9
Protected nongame birds, fully protected, rare or end. species	Ocean sportfish.....	35
Litter.....	Pollution (5650) (Oil).....	1
Public shooting area trespass.	" " (Other).....	
Trespass (2016-18).....	Stream obstruction (5948).....	
Prohibited species.....	1601-1602.....	
	Miscellaneous.....	8
	TOTAL . . . . .	404

C. ASSISTANCE TO OTHER LAW ENFORCEMENT AGENCIES

1. Number of cases filed by Wildlife Protection officers for violation of Penal or other code sections.....	0
2. Number of cases filed by Wildlife Protection officers for city or county ordinances.....	0
3. Number of cases turned over to federal agencies for filing.....	0
4. Number of cases of assistance to other agencies resulting in filing of charges (not included in 1, 2, or 3 above).....	0
5. Number of cases involving felony charges.....	0

D. DEER ACCIDENTALLY KILLED

1. Road kills by motor vehicles	0
2. Kills from other causes (railroads, canals, dogs, etc.)	0